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Reference Lists:

CONTINUUM
MECHANICS

For Beginner:

1. **Spencer, A. J. M.** (1980) “*Continuum Mechanics*”, New York, Dover Publications.
2. **Mase, G. E.** (1970) “*Theory and Problems of Continuum Mechanics*”, New York, McGraw-Hill.
3. **Klausner, Y.** (1991) “*Fundamentals of Continuum Mechanics of Soils*”, New York, Springer-Verlag.
4. **Lai, M.;Krempl, E. and Rubin, D.** (2010) “*Introduction to Continuum Mechanics*”, Elsevier: Burlington, MA, USA, 2010.

Mid Level to Advanced Level:

1. **Truesdell, C.** and Noll, W.(1965) “*The Non-Linear Field Theories of Mechanics*”, New York, Springer-Verlag.
2. **Gurtin, M. E.** (1981) “*An Introduction to Continuum Mechanics*”, New York, Academic Press.
3. **Tadmor, E.; Miller, R.E. and Elliott, R.S.** (2011)“*Continuum Mechanics and Thermodynamics: From Fundamental Concepts to Governing Equations*”, Cambridge University Press: Cambridge.
4. **Godunov, S. K.** and E. I. Romenskii (2003)“*Elements of Continuum Mechanics and Conservation Laws*”, New York, Springer.
5. **Malvern, L. E.** (1969)“*Introduction to the Mechanics of a Continuous Medium*”, Englewood Cliffs, NJ, Prentice Hall.
6. **Chaves, E. W. V.** (2013)“*Notes on Continuum Mechanics*”, Barcelona, Spain, Springer.
7. **Murdoch, A. I.** (2012)“*Physical Foundations of Continuum Mechanics*”, New York, Cambridge University Press.
8. **Segel, L. A.** (2007)“*Mathematics Applied to Continuum Mechanics*”, Philadelphia, Society for Industrial and Applied Mathematics.
9. **Rudnicki, J. W.** (2015)“*Fundamentals of Continuum Mechanics*”, New Delhi, India, John Wiley and Sons.
10. **Reddy, J. N.** (2008)“*An Introduction to Continuum Mechanics*”, New York, Cambridge University Press.
11. **Holzapfel, G. A.** (2001)“*Nonlinear Solid Mechanics: A continuum Approach for Engineering*”, New York, John Wiley and Sons.
12. **Bower, A. F.** (2010)“*Applied Mechanics of Solids*”, New York, CRC Press, Taylor & Francis Group.
13. **Fung, Y. C.** (1965)“*Foundations of Solid Mechanics*”, New Delhi, Prentice-Hall.

1. **Bear, J.** (1972) “*Dynamics of fluids in porous media*”, New York, Dover Publications.
2. **Bear, J.** and Y. Bachmat (1990) “*Introduction to Modeling of Transport Phenomena in Porous Media*”, London, Kluwer Academic Publishers.
3. **Bear, J.** and M. Y. Corapcioglut (1984) “*Fundamentals of Transport Phenomena in Porous Media*”, Boston, Martinus Nijhoff Publishers.
4. **Bear, J.** and A. H.-D. Cheng (2010) “*Modeling Groundwater Flow and Contaminant Transport*”, New York, Springer.
5. **Bowen, R. M.** (1976) “*Continuum Physics, Volume III: Mixtures and EM Field Theories by A. C. Eringen.*”, New York, Academic Press: 2-129.
6. **Bowen, R. M.** (1984) “*Porous Media Model Formulations by the Theory of Mixtures in Fundamentals of Transport Phenomena in Porous Media by Bear, J and M. Y. Corapcioglut* ”, Boston, Martinus Nijhoff Publishers.
7. **Ehlers, W.** and J. Bluhm (2002) “*Porous Media: Theory, Experiments and Numerical Applications*”, New York, Springer.
8. **de Boer, R.** (2005) “*Trends in Continuum Mechanics in Porous Media*”, The Netherlands, Springer.
9. **Helmig, R.** (1997) “*Multiphase Flow and Transport Processes in the Subsurface: A contribution to the modeling of hydrosystems*”, New York, Springer.
10. **Lewis, R. W.** and B. A. Schrefler (1998) “*The Finite Element Method in the Static and Dynamic Deformation and Consolidation of Porous Media*”, New York, John Wiley & Sons.
11. **Oka, F.** and S. Kimoto (2013) “*Computational Modeling of Multiphase Geomaterials*”, London, CRC Press.
12. **Scheidegger, A. E.** (1960) “*The physics of flow through porous media*”, Toronto, University of Toronto Press.
13. **Whitaker, S.** (1999) “*The method of volume averaging*”, Boston, Kluwer Academic Publishers.

1. **Allen III, M. B.**; Behie, G.A. and Trangenstein, J.A. (1988) “*Multiphase flow in porous media: Mechanics, Mathematics and Numerics*”, Springer: New York.
2. **Aziz, K.** ; and A. Settari (1979) “*Petroleum Reservoir Simulation*”, London, Applied Science Publishers Ltd.
3. **Brennen, C. E.** (2005) “*Fundamentals of Multiphase Flows*”, USA, Cambridge University Press.
4. **Chen, Z.**; Huan, G.; Ma, Y. (2006). “*Computational methods for multiphase flows in porous media*” Society for Industrial and Applied Mathematics: Philadelphia, 2006.
5. **Cussler, E. L.** (2007). ‘*Diffusion: Mass Transfer in Fluid System*”, New York, Cambridge University Press.
6. **Das, D. B.** and S. M. Hassanizadeh (2005). “*Upscaling Multiphase Flow in Porous Media From Pore to Core and Beyond*”, U.S.A, Springer.

7. **Diersch, H.-J. G.** (2014). “*FEFLOW Finite Element Modeling of Flows, Mass and Heat Transport in Porous and Fractured Media*”, New York, Springer.
8. **Gundersen, E.** and H. P. Langtangen (1997). “*Finite Element Methods for Two-Phase Flow in Heterogeneous Porous Media*,”, Chapter 10 in Numerical Methods and Software Tools in Industrial Mathematics. M. Daehlen and A. Tveito. New York, Springer.
9. **Helming, R.**; Mielke, A.; Wohlmuth, B.I. (2006). “*Multifield Problems in Solid and Fluid Mechanics*”, Springer: Netherlands.
10. **Iguchi, M.** and O. J. Illegbusi (2014). “*Basic Transport Phenomena in Material Engineering*”, Japan, Springer.
11. **Kaviany, M.** (1995). ‘*Principles of Heat Transfer in Porous Media*”, New York, Springer-Verlag
12. **Kolev, N. I.** (2015). “*Multiphase Flow Dynamics 1: Fundamentals.*”, New York, Springer.
13. **Kolev, N. I.** (2011). “*Multiphase Flow Dynamics 2: Mechanical Interactions*”, Berlin, Springer.
14. **Kolev, N. I.** (2011). ‘*Multiphase Flow Dynamics 3: Thermal Interactions.*”, Berlin, Springer.
15. **Mauri, R.** (2015). ‘*Transport Phenomena in Multiphase Flows*”, Switzerland, Springer.
16. **Vafai, K.** (2015). “*Handbook of Porous Media*”, Third Edition. Baton Rouge, USA, CRC Press.
17. **Wu, Y.-S.** (2016). “*Multiphase fluid flow in porous and fractured reservoir*”, New York, Elsevier.

FINITE ELEMENT *For Beginner:*

METHOD:

1. **Buchanan, G.**(1995). “*Schaum’s Outline of Finite Element Analysis*”, New York, McGraw-Hill.
2. **Johnson, C.** (1987). “*Numerical Solution of Partial Differential Equations by the Finite Element Method*”, New York, Dover Publications.
3. **Koutromanos, I.** (2018). “*Fundamentals of Finite Element Analysis: Linear Finite Element Analysis.*”, India, John Wiley and Sons.
4. **Seegerlind, L. J.** (1984). “*Applied finite element analysis*”, New York, John Wiley and Sons.
5. **Zienkiewicz, O. C.,; Taylor, R.L.; Zhu, J.Z.** (2005). “*The Finite Element Method: Its Basis and Fundamentals.*”, New York, Elsevier.

Others:

1. **Bathe, K.-J.** (2014). “*Finite Element Procedures*”, United States, Prentice Hall.
2. **Britto, A. M.** and M. J. Gunn (1987). “*Critical State Soil Mechanics via Finite Elements*”, Ellis Horwood Limited, New York.
3. **Fish, J.** and T. Belytschko (2007). “*A First Course in Finite Elements*”, England, John Wiley and Sons, Ltd.
4. **Logan, D. L.** (2007). “*A First Course in the Finite Element Method*”, United States, Thomson.
5. **Onate, E.** (2009). “*Structural Analysis with the Finite Element Method: Linear Statics, Volume 1. Basis and Solids*”, Spain, Springer.
6. **Onate, E. (2013).** “*Structural Analysis with the Finite Element Method: Linear Statics, Volume 2. Beams, Plates and Shells*”, Spain, Springer.
7. **Owen, D. R. J.** and E. Hinton (1980). “*Finite Elements in Plasticity: Theory and Practice.*”, Swansea, U.K., Pineridge Press Limited.
8. **Potts, D. M.** and L. Zdravkovic (1999). “*Finite Element Analysis in Geotechnical Engineering: Theory*”, London, Thomas Telford.
9. **Potts, D. M.** and L. Zdravkovic (2001). “*Finite Element Analysis in Geotechnical Engineering: Application*”, London, Thomas Telford.
10. **Reddy, J. N.** (2006). “*An Introduction to the Finite Element Method*”, New York, McGrawHill.
11. **Thomee, V.** (2000). “*Galerkin Finite Element Methods for Parabolic Problems*”, Netherlands, Springer.

For Beginner:

1. **O'Sullivan, C.** (2011). “*Particulate Discrete Element Modelling: A Geo-mechanics Perspective*”, New York, Spon Press.
2. **Thornton, C.** (2015). “*Granular Dynamics, Contact Mechanics and Particle System Simulations: A DEM study*”, New York, Springer.
3. **Rothenburg, L.** (1980). “*Micromechanics of idealized granular systems. Faculty of Engineering. Ottawa*”, Carleton University, PhD.
4. **Sweijen, T.** (2017). “*A grain-scale study of unsaturated flow in highly swelling granular materials*”, Department of Earth Sciences. Netherlands, Utrecht University, PhD.

Others:

1. **Iwashita, K.** and M. Oda (1999). “*Mechanics of Granular Materials: An Introduction*”, Netherlands, CRC Press.
2. **Jebahi, M.**, et al. (2015). “*Discrete Element Method to Model 3D Continuous Materials*”, Hoboken, NJ, John Wiley & Sons.
3. **Marshall, J. S.** and S. Li (2014). “*Adhesive Particle Flow: A Discrete-Element Approach*”, New York, Cambridge University Press.
4. **Matuttis, H. G.** and J. Chen (2014). “*Understanding the Discrete Element Method: Simulation of Non-Spherical Particles for Granular and MultiBody Systems*”, Singapore, John Wiley & Sons.
5. **Norouzi, H. R.**, et al. (2016). “*Coupled CFD-DEM Modeling: Formulation, Implementation and Application to Multiphase Flows*”, United Kingdom, Wiley.
6. **Samiei, K.** (2014). “*Implicit and Explicit Algorithms in Discrete Element Method*”, Lambert Academic Publishing.
7. **Smilauer, V.** (2010). “*Cohesive Particle Model using the Discrete Element Method on the Yade Platform*”, Faculty of Civil Engineering. Prague, Czech Technical University. PhD.
8. **Wu, C. Y.** (2012). “*Discrete Element Modelling of Particulate Media*” UK, The Royal Society of Chemistry.

1. **Banerjee, P. K.** and R. Butterfield (1981). “*Boundary element methods in engineering science*”, London, McGraw-Hill.
2. **Brebbia, C. A.** and J. Dominguez (1994). “*Boundary Elements An Introductory Course*”, Boston, WIT Press, Computational Mechanics Publications.
3. **Hall, W. S.** (1994). “*The Boundary Element Method*”, Boston, Kluwer Academic Publishers.
4. **Katsikadelis, J. T.** (2016). “*The Boundary Element Method for Engineers and Scientists: Theory and Applications*”, New York, Elsevier.
5. **Kobayashi, S.** and N. Nishimura (1992). “*Boundary Element Methods: Fundamentals and Applications.*”, New York, Springer-Verlag Berlin Heidelberg.
6. **Kythe, P. K.** (1995). “*An Introduction to Boundary Element Methods*”, London, CRC Press.
7. **Ozisik, M. N.** (1968). “*Boundary Value Problems of Heat Conduction*”, New York, Dover Publications.
8. **Paris, F.** and J. Canas (1997). “*Boundary Element Method: Fundamentals and Applications*”, Oxford Science Publications.

For Beginner:

1. **Cheng, A. H.-D.** (2016). “*Poroelasticity*.”, Switzerland, Springer.
2. **Chou, P. C.** and N. J. Pagano (1967). “*Elasticity: Tensor, Dyadic and Engineering Approaches*”, New York, D. Van Nostrand Company.
3. **Coussy, O.** (2004). “*Poromechanics*”, England, John Wiley and Sons.
4. **Coussy, O. (2010).** “*Mechanics and Physics of Porous Solids*”, United Kingdom, John Wiley and Sons.
5. **Detournay, E.** and A. H.-D. Cheng (1993). “*Fundamentals of Poroelasticity*”, in Comprehensive Rock Engineering: Principles, Practice and Projects, Vol. II, Analysis and Design Method. by C. Fairhurst, Pergamon Press: 113-171.
6. **Khan, A. S.** and S. Huang (1995). “*Continuum Theory of Plasticity*”, New York, John Wiley and Sons.
7. **Love, A. E. H.** (1927). “*A treatise on the mathematical theory of elasticity*”, Cambridge, Cambridge University Press.
8. **Maceri, A.** (2010). “*Theory of Elasticity*”, New York, Springer.
9. **Marsden, J. E.** and T. J. R. Hughes (1983) “*Mathematical Foundations of Elasticity*”, New York, Dover Publications.
10. **Slaughter, W. S.** (2002). “*The Linearized Theory of Elasticity*”, New York, Springer.
11. **Sadd, M. H.** (2014). ‘*Elasticity: Theory, Applications and Numerics*”, Waltham, MA, USA, Academic Press.
12. **Timoshenko, S.** and J. N. Goodier (1951). “*Theory of Elasticity*”, New York, McGraw Gill.
13. **Wang, H. F.** (2000). “*Theory of Linear Poroelasticity*”, New Jersey, Princeton University Press.

Others:

1. **Anandarajah, A.** (2010). “*Computational Methods in Elasticity and Plasticity Solids and Porous Media*”, New York, Springer.
2. **Borja, R. I.** (2013). “*Plasticity: Modeling and Computation*”, New York, Springer.
3. **Bertram, A.** (2005). “*Elasticity and plasticity of large deformations: An Introduction*”, Germany, Springer.
4. **Chen, W. F.** and G. Y. Baladi (1985). “*Soil Plasticity: Theory and Implementation*”, New York, Elsevier.
5. **Chung, K.** and M.-G. Lee (2018). “*Basics of Continuum Plasticity*”, Singapore, Springer.
6. **Desai, C. S.** and M. Zaman (2014). “*Advanced Geotechnical Engineering: Soil-Structure Interaction Using Computer and Material Models*”, New York, CRC Press, Taylor and Francis Group.
7. **Desai, C.** and H. J. Siriwardane (1984). “*Constitutive Laws For Engineering Materials*”, Prentice-Hall, New Jersey.
8. **Dimitrienko, Y. I.** (2011). “*Nonlinear Continuum Mechanics and Large Inelastic Deformations*”, New York, Springer.

9. **Han, W.** and B. D. Reddy (1999). “*Plasticity: Mathematical Theory and Numerical Analysis*”, New York, Springer.
10. **Hashiguchi, K.** and Y. Yamakawa (2013). “*Introduction to Finite Strain Theory for Continuum Elasto-Plasticity*”, West Sussex, UK, John Wiley and Sons.
11. **Hashiguchi, K.** (2014). “*Elastoplasticity Theory*”, New York, Springer.
12. **Hill, R.** (1950). “*The Mathematical Theory of Plasticity*”, Oxford, Clarendon Press.
13. **Houlsby, G. T.** and A. M. Puzrin (2006). “*Principles of Hyperplasticity: An Approach to Plasticity Theory Based on Thermodynamic Principles*”, Springer.
14. **Kachanov, L. M.** (1971). “*Foundations of the theory of plasticity*”, North Holland Publishing Company.
15. **Lubarda, V. A.** (2002). “*Elastoplasticity Theory*”, New York, CRC Press.
16. **Lubliner, J.** (1990). “*Plasticity Theory*”, New York, Dover Publications.
17. **Nemat-Nasser, S.** (2004). “*Plasticity: A treatise on Finite Deformation of Heterogeneous Inelastic Materials*”, New York, USA, Cambridge University Press.
18. **Ottosen, N. S.** and M. Ristinmaa (2005). “*The Mechanics of Constitutive Modeling*”, New York, Elsevier.
19. **Puzrin, A. M.** (2012). “*A constitutive modelling in Geomechanics: Introduction*”, New York, Springer.
20. **Slater, R. A. C.** (1977). “*Engineering Plasticity: Theory and application to metal forming processes*”, London, The Macmillan Press Ltd.
21. **Yang, Q.**, et al. (2013). “*Constitutive Modeling of Geomaterials: Advances and New Applications*”, New York, Springer.
22. **Yu, H. S.** (2006). “*Plasticity and Geotechnics*”, Springer, USA.
23. **Yu, H.-S.** (2000). “*Cavity Expansion Methods in Geomechanics*”, The Netherlands, Kluwer Academic, Dordrecht.

NUMERICAL
METHODS:

1. **Axelsson, O.** (1996). “*Iterative solution methods*”, Cambridge, Cambridge Press.
2. **Aziz, K.** and A. Settari (1979). “*Petroleum Reservoir Simulation*”, London, Applied Science Publishers Ltd.
3. **Burden, R. L.**, et al. (2016). “*Numerical Analysis*”, United States, Cengage Learning.
4. **Isaacson, E.** and H. B. Keller (1966). “*Analysis of Numerical Methods*”, New York, Dover Publications.
5. **Minoux, M.** and S. Vajda (1989). “*Mathematical Programming: Theory and Algorithms*”, USA, Dover Publications.
6. **Ortega, J. M.**, et al. (1970). “*Iterative Solution of Nonlinear Equations in Several Variables*”, New York, Academic Press.
7. **Saad, Y.** (2003). “*Iterative Methods for Sparse Linear Systems*”, The Society for Industrial and Applied Mathematics.
8. **Sauer, T.** (2018). “*Numerical Analysis*”, USA, Pearson.
9. **Van der Vorst, H. A.** (2003). “*Iterative Krylov Methods for Large Linear Systems*”, Cambridge, Cambridge University Press.
10. **Varga, R. S.** (1963). “*Matrix iterative analysis*”, Englewood Cliffs, N.J., Prentice-Hall.
11. **Young, D. M.** (2003). “*Iterative Solution of Large Linear Systems*”, New York, Dover Publications.
12. **Wood, W. L.** (1990). “*Practical time-stepping schemes*”, Oxford, UK, Oxford University Press.

SOIL MECHANICS:

1. **Atkinson, J. H.** and P. L. Bransby (2012). “*The Mechanics of Soil: An Introduction to Critical State Soil Mechanics*”, Delhi, India, Indo American Books.
2. **Betten, J.** (2005). “*Creep Mechanics*”, Germany, Springer.
3. **Bolton, M.** (1979). “*A guide to Soil Mechanics*”, Palgrave.
4. **Budhu, M.**(2011). “*Soil Mechanics and Foundations*”, John Wiley & Sons, INC.
5. **Das, B. M.** (2014). “*Advanced Soil Mechanics*”, CRC Press, Taylor & Francis Group.
6. **Das, B. M.** and K. Sobhan (2014). “*Principles of Geotechnical Engineering*”, USA, Cengage Learning.
7. **Fredlund, D. G.** and H. Rahardjo (1993). “*Soil Mechanics for Unsaturated Soils*”, New York, John Wiley & Sons, Inc.
8. **Lade, P. V.** (2016). “*Triaxial Testing of Soils*”,UK, John Wiley & Sons.
9. **Helwany, S.** (2007). “*Applied soil mechanics with ABAQUS applications*”, Hoboken, New Jersey, USA, John Wiley & Sons.
10. **Nakai, T.** (2013). “*Constitutive Modeling of Geomaterials Principles and Applications*”, CRC Press, Taylor & Francis Group.
11. **Nova, R.** (2010). “*Soil Mechanics (Translated by Gabrieli, L.)*”, New Jersey, Wiley.
12. **Schofield, A. N.** and P. Wroth (1968). “*Critical State Soil Mechanics*”, London, McGrawHill.
13. **Terzaghi, K.** (1943). “*Theoretical Soil Mechanics*”, New York, John Wiley and Sons.
14. **Terzaghi, K.**, et al. (1996). “*Soil Mechanics in Engineering Practice*”, New York, John Wiley & Sons.
15. **Wood, D. M.** (1990). “*Soil Behaviour and Critical State Soil Mechanics*”, Cambridge, Cambridge University Press.
16. **Wood, D. M.** (2004). “*Geotechnical Modelling*”, Spon Press, New York.
17. **Wood, D. M.** (2009). “*Soil mechanics: A one dimensional introduction*”, Cambridge Cambridge University Press.

1. **Boley, B. A.** and J. H. Weiner (1960). “*Theory of Thermal Stresses*”, New York, Dover Publications.
2. **Kaviany, M.** (1995). “*Principles of Heat Transfer in Porous Media*”, New York, Springer-Verlag
3. **Look, D. C.** and H. J. Sauer (1986). “*Engineering Thermodynamics*”, Boston, PWS Engineering.
4. **Nowacki, W.** (1986). “*Thermoelasticity (Translated by Henryk Zorski)*”, New York, Pergamon.
5. **Parkus, H.** (1968). “*Thermoelasticity*”, New York, Springer-Verlag.
6. **Potter, M. C.** and C. W. Somerton (2014). “*Thermodynamics for Engineers*”, USA, McGraw Hill.
7. **Sengers, J. V.**, et al. (2000). “*Equation of State for Fluids and Fluids Mixtures, Part I: Experimental Thermodynamics, Volume*”, New York, Elsevier.
8. **Houlsby, G. T.** and A. M. Puzrin (2006). “*Principles of Hyperplasticity: An Approach to Plasticity Theory Based on Thermodynamic Principles*”, Springer.
9. **Hutter, K.** and Y. Wang (2016). “*Fluid and Thermodynamics: Volume 1 Basic Fluid Mechanics*”, Springer.
10. **Adkins, C. J.** (1983). “*Equilibrium Thermodynamics*”, New York, Cambridge University Press.
11. **Aris, R.** (1962). “*Vectors, Tensors, and the Basic Equations of Fluid Mechanics*”, New York, Dover Publications.

1. **Bear, J.** and B. Berkowitz (1987). “*Groundwater flow and pollution in fractured rock aquifers, in Developments in hydraulic engineering by Novak, P., Vol.4*”, New York, Elsevier: 175-238.
2. **de Borst, R.** (2018). “*Computational Methods for Fracture in Porous Media: Isogeometric and Extended Finite Element Methods*”, United States, Elsevier.
3. **Dietrich, P.**, et al. (2005). “*Flow and Transport in Fractured Porous Media*”, New York, Springer.
4. **Diomampo, G., P.** (2001). “*Relative permeability through fractures*”, Stanford University, Stanford, CA.
5. **Khoei, A. R.** (2014). “*Extended Finite Element Method: Theory and Applications*”, New York, John Wiley & Sons.
6. **Soheil, M.** (2008). “*Extended Finite Element Method: for Fracture Analysis of Structures*”, USA, Blackwell Publishing Ltd.
7. **Zhuo Z.**, et al. (2014). “*Extended finite element method*”, Amsterdam, Elsevier Academic Press.